



Document revised on 2021/12/2

Product Overview

The WE-T51 electronic tag periodically transmits its ID information wirelessly, with a maximum transmission range of 100 meters. By deploying a positioning base station (system), the tag's exact location can be determined. Users can activate the tag via the base station, handheld device, or mobile app to trigger audio-visual alerts, significantly improving search efficiency. When attached to items like shipping containers, carts, or workpieces, the tag ensures easy retrieval regardless of where the object is placed.

Press the red confirm button to immediately stop the sound and light reminder and send a confirmation message to the system, notifying the system that the specified item has been found.

The warehouse management system is available for free use on computers, handheld devices or mobile phones. It can easily inventory and call the labels in the warehouse, make the labels glow and make them sound, avoid the loss of goods, facilitate the search of goods, and improve the efficiency of warehouse management.

The electronic tag uses an ER14505 lithium battery, which can meet the requirements of 200 million wireless transmissions or 80 hours of sound and light reminders. When the battery is not enough, there is a low battery reminder.

product features

- It can emit light and sound, featuring 3 high-brightness LED lights and a piezoelectric active buzzer.
- The ER14505 lithium battery can withstand 200 million cycles and allows for self-replacement.
- The total duration of the light and sound alert is not less than 80 hours (excluding the power consumption of wireless transmission).
- It has a low voltage reminder and real-time power display. After low voltage, the remaining power can be transmitted 10 million times.
- The wireless transmission power is 3mW, the transmission distance can reach 100 meters, and the standby power consumption is only 2uA.
- The wireless frequency band uses the 2.4GHz global development microwave frequency band, no application or payment is required.
- The four magnetic nails can be easily attached to the surface of iron objects, or can be installed with screws or zip ties.
- The housing is made of PC engineering plastic with IP56 protection rating, making it rainproof for outdoor use.
- Rectangular prism (62mm x 40mm x 25mm, excluding side hooks), weighing 62 grams.
- The operating temperature ranges from -40°C to 70°C, and it can be used in outdoor extreme cold environments.

Battery life assessment

Assume the tag has an average call time of 10 minutes per day and transmits once every second.

Daily wireless transmission power consumption: $3600 \times 24 / 200000000 = 0.000432$

Daily light and sound reminders: $10 / (80 \times 60) = 0.002083$

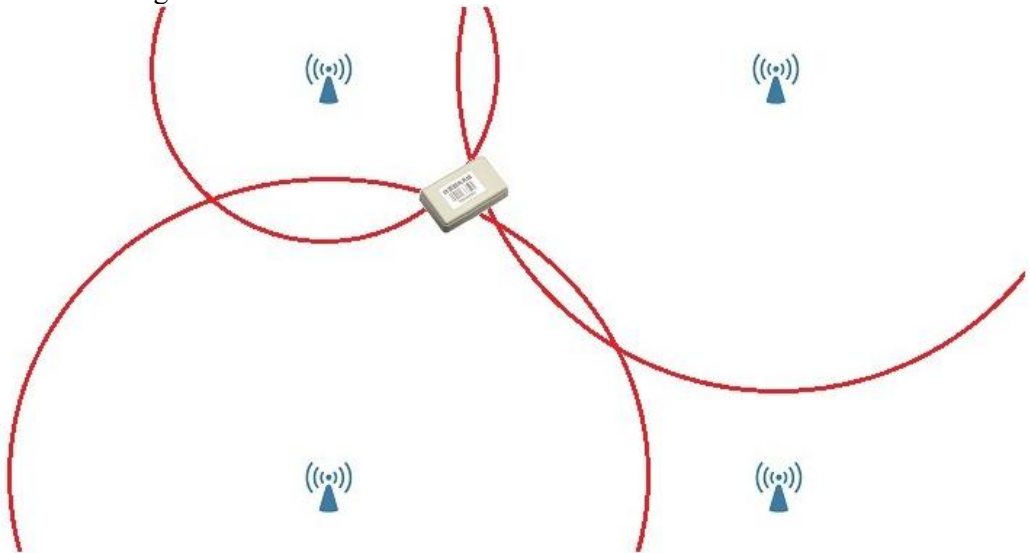
Daily total power consumption 0.002515

$1 / 0.002515 = 397$ (days)

Enter the approximate location of the base station measurement tag

By installing positioning base stations (card readers) around warehouses and workshops, the approximate location of electronic tags can be determined. Within the effective range, each base station receives distance measurements from the tags. By analyzing data from 2-3 nearest base stations, the tag's spatial coordinates can be calculated. The positioning accuracy ranges from 1 to 3 meters.

As shown in the figure below:



Production management system call label

The tag positioning function is embedded in the production management system. The management system can not only know the location of the tag, but also directly call the tag when necessary, making the tag glow and make sound. The location of the item can be easily determined through the sound and light reminder, and the production process is more accurate and efficient.

The production management system sends the call instruction to the tag positioning system. The tag positioning system sends the call instruction to the tag from the nearest base station (card reader) according to the current position of the tag. The called tag sends an audio and light reminder.

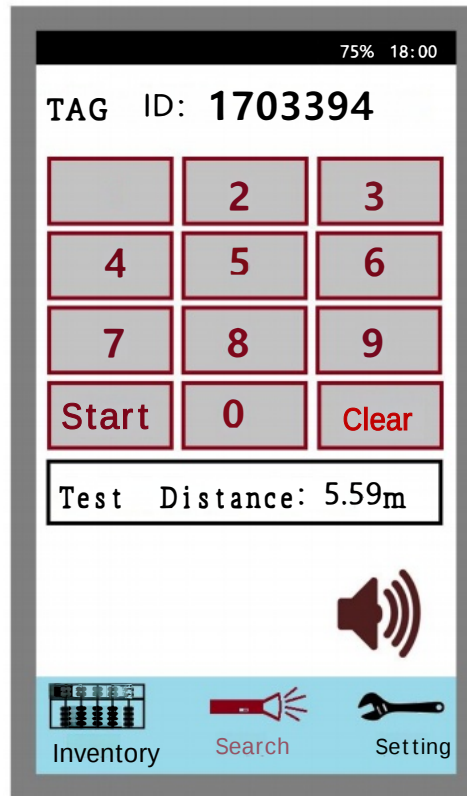


The MES system instructs the positioning base station (card reader) to activate the tag.

Use the handheld device to find the tag directly

Even without a GPS system, you can still locate tags using a handheld device. Simply enter the tag ID directly on the device or send the item's tag ID via inventory software. The handheld will then initiate the search to verify if the tag is nearby. Once the initial location is confirmed, the device sends a command to activate the tag, which triggers audible and visual alerts to help you easily find it. Here's how it works:

Open the handheld device, go to the "Find" page, enter the corresponding tag code, and click the "Start" button to locate nearby tags. If a tag is found, the handheld will display the actual distance between the tag and the device. You can quickly determine the tag's proximity based on the distance value, pinpoint its location, and improve the efficiency of item searches.



The target electronic tag will light up (flashing continuously) to show its location. If still not found, tap the speaker button at the bottom right to hear a 'beep beep beep' sound, helping you locate it more easily.

Report data for labels

The wireless data transmitted by the tag includes the tag ID, tag type, low-voltage alert, and extended data. Except for the extended data, the format of other data is the same for different types of tags. For details, refer to the reader's user manual.

The extended data for this tag is one byte, as follows:

Data Bit	7	6	5	4	3	2	1	0
Data Content	Remaining Power				Retain		acousto-optic	Button

BIT 0: Confirm button

1: The "Confirm" button is pressed. 0: The "Confirm" button is not pressed.

The user can determine whether there is a key action on the tag based on this bit. In practice, the application system uses this flag to confirm whether the user has found something.

BIT 1: Sound and light reminder sign.

1: Sound and light alert is on. 0: Sound and light alert is off.

Users can use this bit to determine whether the tag has successfully received the audio and light alert instruction

BIT 4~7: Remaining power

numeric value	quantity of electricity
0	0%
1	10%
2	20%
3	30%
4	40%
5	50%
6	60%
7	70%
8	80%
9	90%
10 (hexadecimal "A")	100%

Call tag data

When calling a tag, different tags have different call mode definitions. Details are as follows:

Call Mode	period	explain
0	2 times per second	Only green light flashing
1		Green light flashing + buzzer
2		Only red light flashing
3		Red light flashing + buzzer
4		Red and green alternate
5		Red and green flashing
8	1 second	Only green light flashing
9		Green light flashing + buzzer
10		Only red light flashing
11		Red light flashing + buzzer
12		Red and green alternate
13		Red and green flashing
16	Every 2 seconds	Only green light flashing
17		Green light flashing + buzzer
18		Only red light flashing
19		Red light flashing + buzzer
20		Red and green alternate
21		Red and green flashing
24	Every 3 seconds	Only green light flashing
25		Green light flashing + buzzer
25		Only red light flashing
27		Red light flashing + buzzer
28		Red and green alternate
29		Red and green flashing
32	Always on	Only green light
33		Green light on + buzzer sounds
34		Only red light
35		Red light on + buzzer sounds
36		Both lights are on
37		Both lights are on and the buzzer
255		Stop reminders

Confirm item found

After the user finds the item based on the sound and light reminder, they can press the red confirmation button on the tag. The tag will immediately stop the sound and light reminder, and the button press flag will be attached to the next ten wireless reports. When the application system receives this flag, it should be considered that the user has found the tag.

Low Voltage Alert

When the battery is under voltage (less than 20%), calling the tag again will not trigger any sound or light alerts. In this case, the red light will occasionally flash to remind you to replace the battery promptly. The tag will continue wireless transmission during under-voltage conditions, with the red light flashing once every 10 transmissions.

way to install

Magnetic attraction, or use screws, zip ties to fix.

Precautions

- 1) Keep the label surface dry.
- 2) Do not put it in a place with more metal.
- 3) Do not place it in a closed space.
- 4) Do not place near corrosive materials.
- 5) Please use it under normal working temperature and humidity.
- 6) The maintenance shall not change the parameters, specifications and models of the product components at will.
- 7) Do not soak for a long time.